CLAIMS

1. A method for introducing selectable amounts of temporal dispersion into a signal, the method comprising the steps of:

   a) selectively directing an electromagnetic radiation beam to a predetermined optical path; and

   b) subsequently selectively directing the electromagnetic radiation beam to another predetermined optical path;

   wherein the steps of selectively directing and subsequently selectively directing the electromagnetic radiation beam angularly separate spectral components of the electromagnetic radiation beam in order to introduce the selectable amounts of temporal dispersion.

2. The method of claim 1 further comprising the step of:

   c) repeating step b) until a direction of propagation of the electromagnetic radiation beam is substantially parallel to an input direction.

3. The method of claim 1 further comprising the step of:

   c) redirecting the selectively directed electromagnetic radiation beam to a predetermined direction.

4. A method for compensating angular dispersion comprising the step of:

   selectively diffracting an output electromagnetic radiation beam originating from a switching/routing optical system;

in order to render, after selective diffraction, a direction of propagation of the electromagnetic radiation output beam parallel to an input direction.

5. The method of claim 4 further comprising the step of:
propagating an input electromagnetic radiation beam through a steering diffracting element before entering the switching/routing optical system.

6. The method of claim 4 further comprising the step of:
selectively diffracting at least one crosstalk induced output electromagnetic radiation beam.

7. An angular dispersion compensated optical system comprising:
a switching/routing optical system capable of receiving an input electromagnetic radiation beam along an input direction and providing at least one output electromagnetic radiation beam; and,
a beam diffraction element optically disposed on an output side of the switching/routing optical system and aligned to receive the at least one output electromagnetic radiation beam, the beam diffraction element being capable of selectively directing the at least one output electromagnetic radiation beam in order to render a direction of propagation of the selectively diffracted at least one output electromagnetic radiation beam substantially parallel to the input direction.

8. The angular dispersion compensated optical system of claim 7 further comprising:
a beam steering diffraction element optically disposed before the switching/routing optical system and capable

of receiving the input electromagnetic radiation beam and providing the steered input electromagnetic radiation beam to the switching/routing optical system.

9. The angular dispersion compensated optical system of claim 7 wherein the beam diffraction element comprises a diffraction grating.

10. The angular dispersion compensated optical system of claim 9 wherein the diffraction grating comprises a pixellated diffraction grating.

11. The angular dispersion compensated optical system of claim 9 wherein the diffraction grating comprises a switched grating.

12. The angular dispersion compensated optical system of claim 11 wherein the switched grating comprises a pixellated switched grating.

13. The angular dispersion compensated optical system of claim 8 wherein the steering diffraction element comprises a diffraction grating.

14. The angular dispersion compensated optical system of claim 8 wherein the beam diffraction element comprises a diffraction grating.

15. The angular dispersion compensated optical system of claim 14 wherein the diffraction grating comprises a pixellated diffraction grating.

16. The angular dispersion compensated optical system of claim 14 wherein the diffraction grating comprises a switched grating.

17. The angular dispersion compensated optical system of claim 16 wherein the switched grating comprises a pixellated switched grating.